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10/823,353	04/13/2004	Phillip C. Watts	028058-000110US	4721
20350 7590 02/02/2010 TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER MOWLA, GOLAM	
			ART UNIT 1795	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## **FINAL ACTION**

### ***Response to Amendment***

1. Applicant's amendment of 10/07/2009 does not place the Application in condition for allowance.
2. Claims 8-22 and 24-31 are currently pending. Applicant has amended claims 8-9 and 15-16, cancelled claims 1-7 and 23, and added new claims 25-31. Claims 17-22 withdrawn from consideration as being part of non-elected invention.
3. The amendment filed 10/07/2009 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:
  - Claim 8 requires the first thermal module to comprise a block including a first passage through which first passage the first fluid flows through the block and that each of the plurality of second thermal modules comprises a respective second block including a respective second passage through which second passage the second fluid flows through the respective second block. However, the original specification as filed does not disclose that the first fluid flows through the first block and the second fluid flows through the second block.

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- Claim 25 recites the limitation “the first fluid and the second fluid are received from external storage reservoirs, which not supported by the original specification as filed.
- Claim 26 recites the limitation “the first fluid and the second fluid circulate to and from external storage reservoirs” which is not supported by the original disclosure as filed.
- Claim 27 recites the limitation “a common inlet through which the second fluid is received for distribution to all of the second thermal modules” which is not supported by the original disclosure as filed.
- Claim 28 recites the limitation “both fluids are liquids,” which is not supported by the original disclosure as filed. Although the specification discloses the use of water as the fluid, the original specification fails to provide support that at the time of the invention applicant has possession to every possible kind of heat transfer liquid such as liquid metals, ammonia or methyl alcohol to name a few. See US 4011104 which lists liquid metals, ammonia or methyl alcohol as the heat transfer liquid.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Status of the Objections or Rejections***

4. The objections to the Specification and Claims are withdrawn in view of Applicant's amendment.

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5. Due to Applicant's amendment of claims 8-9 and 15-16, all rejections from the office Action dated 07/07/2009 are withdrawn. However, upon further consideration, a new ground of rejection is presented below.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

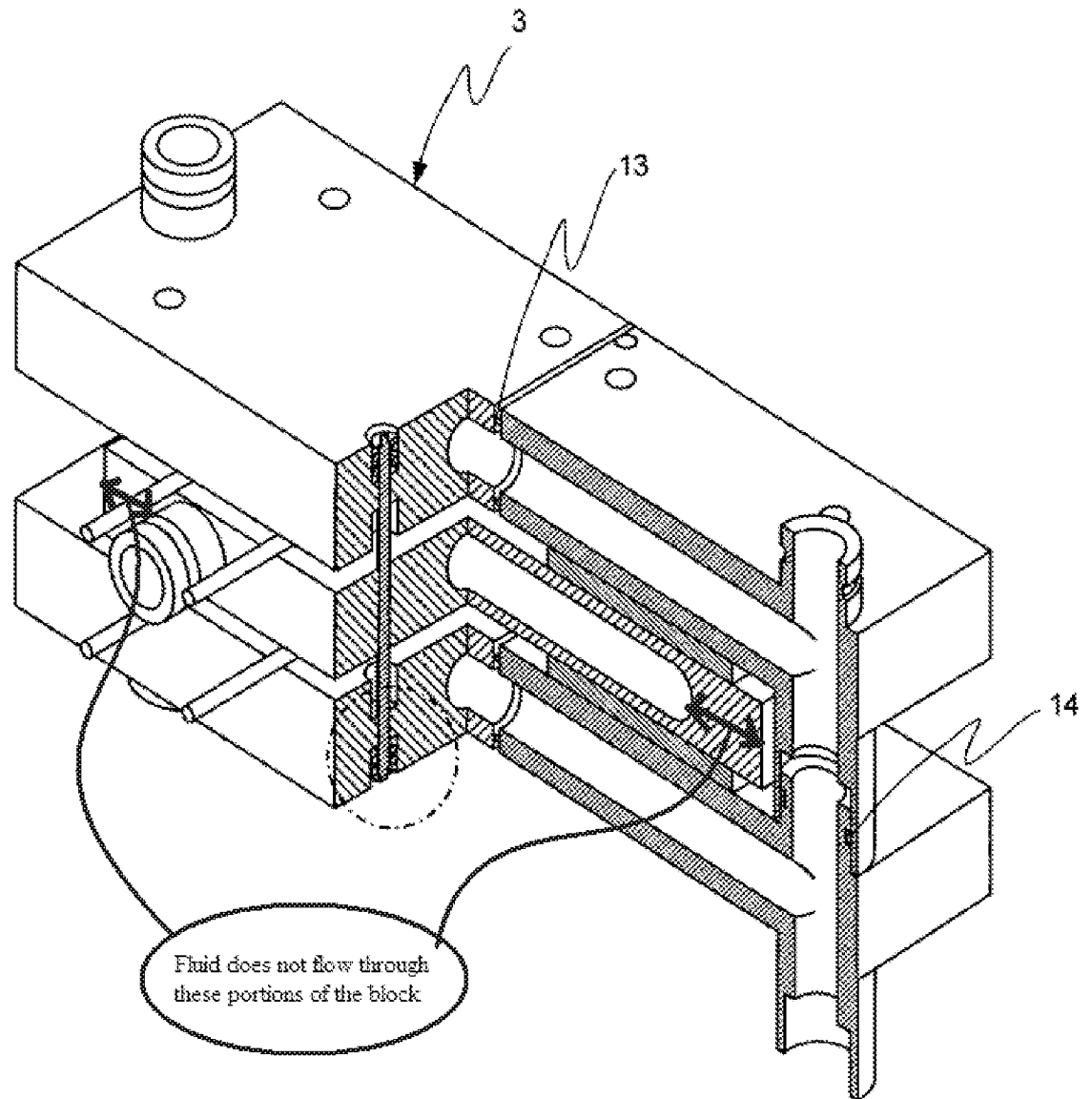
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 8-16 and 24-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 8 requires the first thermal module to comprise a block including a first passage through which first passage the first fluid flows through the block and that each of the plurality of second thermal modules comprises a respective second block including a respective second passage through which second passage the second fluid flows through the respective second block. However, although the fluid goes from the inlet port to the outlet port, the original specification as filed does not disclose that the first fluid flows through the first block and the second fluid flows through the second block. In order for the first fluid to flow through the first block (hot block 7), the first fluid has to pass from one end of the block 7 to other. See figure below which illustrates the

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portions through which the first fluid does not go through. Similar reasoning applies for the cold blocks 1 and 3.



Claim 25 recites the limitation "the first fluid and the second fluid are received from external storage reservoirs, which not supported by the original specification as filed.

Claim 26 recites the limitation “the first fluid and the second fluid circulate to and from external storage reservoirs” which is not supported by the original disclosure as filed.

Claim 27 recites the limitation “a common inlet through which the second fluid is received for distribution to all of the second thermal modules” which is not supported by the original disclosure as filed. Figures 1 and 2 of the instant invention show two inputs (6 and 9).

Claim 28 recites the limitation “both fluids are liquids,” which is not supported by the original disclosure as filed. Although the specification discloses the use of water as the fluid, the original specification fails to provide support that at the time of the invention applicant has possession to every possible kind of heat transfer liquid such as liquid metals, ammonia or methyl alcohol to name a few. See US 4011104 which lists liquid metals, ammonia or methyl alcohol as the heat transfer liquid.

***Claim Rejections - 35 USC § 102***

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 8-15, 24-25, 27-28 and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by DeBucks (US 3607444).

Regarding claims 8 and 14-15, DeBucks discloses a thermoelectric generator (see figures 1-4) (3:14-5:40) for generating electricity from a temperature differential between a first fluid (hot fluid in heat exchanger 17, see fig. 4 and 1:2-8) and a second

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fluid (cold fluid in heat exchanger 16, see fig. 4 and 1:2-8), the thermoelectric generator comprising:

- a plurality of thermoelectric modules (see fig. 4 which shows plurality of TE modules comprising TE elements 1), wherein:
  - each of the thermoelectric modules comprises a first side (top/bottom) and a second (bottom/top) side (see fig. 4); and
  - each of the thermoelectric modules generates electricity when there is a difference in temperature between the first side (top/bottom) and the second side (bottom/top);
- a first thermal module (heat exchanger part 17), wherein:
  - first thermal module (17) comprises a first block (see fig. 4 which shows the rectangular block) including a first passage (18) through which first passage (18) the first fluid flows through the block (17) (5:28-34) ; and
  - first thermal module (17) is configured to exchange heat with the first sides (top/bottom) of at least two of the plurality of thermoelectric modules (TE modules comprising TE elements 1); and
- a plurality of second thermal modules (16), wherein:
  - each of the plurality of second thermal modules (16) comprises a respective second block (16) including a respective second



- passage through which second passage the second fluid (cold fluid) flows through the respective second block (16) (5:28-34); and
- a side of each of the second thermal modules (16) is configured to exchange heat with exactly one of the thermoelectric modules through the second side (bottom/top) of the respective thermoelectric module (see figs. 1-4); and
  - each of the second thermal modules (16) accommodates all axis mechanical variance in its respective thermoelectric module (4:71-75).

Regarding claims 9-13, the reference further discloses a compression mechanism comprising spring (spring material the tube) and a rod (10) (see fig. 1), wherein the compression mechanism is operably coupled with two of the plurality of second thermal modules (16) such that first thermal module (17) and at least one of the plurality of thermoelectric modules (1) is compressed between two of the plurality of second thermal modules (16) (3:43-4:75). Since the compression mechanism comprises rod and spring as claimed in the instant Application, the compression mechanism is inherently configured to compress with an actively variable force, to compensate for thermal expansion and thermal contraction of at least one of the plurality of second thermal modules, and to compensate for stack tolerance build-up of the plurality of second thermal modules. Claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make

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the claim patentable. See MPEP §2112. See also *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Regarding claim 24, DeBucks further discloses that the first fluid (fluid at the hot side) is at a higher temperature than the second fluid (fluid at the cold side) (the fluid at the hot side inherently is at a higher temperature than the fluid at the cold side).

Regarding claim 25, the heat exchanger (16/17) inherently has inlet through which it receives fluid from external reservoirs.

Regarding claim 27, the reference further discloses a common inlet (flow channel) through which the second fluid is received for distribution to all of the second thermal modules (5:27-34).

Regarding claim 28, the reference further discloses that the first and second fluid are liquids (1:2:8).

Regarding claims 30 and 31, the reference further teaches that the thermal modules are rectangular (see fig. 4 for configuration).

### ***Claim Rejections - 35 USC § 103***

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeBucks as applied to claim 8 above, and further in view of Sorber (US 4564504).

Applicant is directed above for complete discussion of DeBucks with respect to claim 8, which is incorporated herein. DeBucks is silent as to the use of o-ring slip joint

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to couple at least one of the plurality of the second thermal modules with at least one other of the second plurality of first thermal modules.

Sorber teaches the use of o-ring slip joint between a pipe and cooling tower house facilitates the expansion and contraction of the cooling tower components during the process (col. 2, lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the o-ring slip joint of Sorber in the thermoelectric generator of DeBucks in order to facilitate the expansion and contraction of the components of the heat sink of DeBucks, as taught by Sorber.

12. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeBucks as applied to claim 8 above.

Applicant is directed above for complete discussion of DeBucks with respect to claim 8, which is incorporated herein. DeBucks is silent as to whether the fluids are recirculated, i.e. the first fluid and the second fluid circulate to and from external storage reservoirs. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the fluids recirculated such that the thermoelectric module can use the same fluids to generate electricity up until the fluids reach at an equilibrium temperature.

13. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeBucks as applied to claim 28 above, and further in view of Hed (US 5228923).

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Applicant is directed above for complete discussion of DeBucks with respect to claim 28, which is incorporated herein. DeBucks is silent as to whether the liquid is water.

Water is a well-known heat transfer material which is widely used in the thermoelectric generator, as shown by Hed (10:16-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized water as the fluid in the thermoelectric generator of DeBucks, because selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP § 2144.07.

### ***Response to Arguments***

14. Applicant's arguments with respect to claims 8-16 and 24-31 have been considered but are moot in view of the new ground(s) of rejection as necessitated by the amendments.

On page 9 of Remarks, Applicant argues that neither Miyake nor Brittain nor their combination shows the first thermal module comprises a block including a first passage through which first passage the first fluid flows through the block and that each of the plurality of second thermal modules comprises a respective second block including a respective second passage through which second passage the second fluid flows through the respective second block.

This argument is directed to the claim as amended and is moot in view of new ground of rejection as presented above.

***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Correspondence/Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GOLAM MOWLA whose telephone number is (571) 270-5268. The examiner can normally be reached on M-F, 0900-1700 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ALEXA NECKEL can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/G. M./

Examiner, Art Unit 1795

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795